

CLAIMS

1. A photodetector formed in an active area of a semiconductor substrate of a first conductivity type, including a MOS transistor and a photodiode, said transistor having a source region disposed on a first side of a channel region and a drain region disposed on a second side of the channel region, said photodiode being formed of the junction between the substrate and a region of a second conductivity type formed in a planar surface of the substrate and also forming the source region of the MOS transistor, a heavily-doped layer of a first conductivity type covering the source region and a portion of the substrate, wherein said source region is formed in the substrate on one side of the channel region except in a portion of the substrate extending in a centered manner from a side of the source region opposite to the channel region, towards this channel region.
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2. The photodetector of claim 1, wherein said portion of the substrate is rectangular.
3. The photodetector of claim 1, wherein said portion of the substrate has a width increasing from the inside towards the edge of the source region.
4. The photodetector of claim 1, wherein the first side and the second side are on opposite sides of the channel region.
5. The photodetector of claim 1, wherein the first conductivity type is type P and the second conductivity type is type N, and the substrate and said layer are maintained at a reference voltage of the circuit.
6. The photodetector of claim 1, wherein the thickness of the source region and the respective dopings of the source region and of said layer are such that the space charge area between the source region and said layer takes up the entire thickness of the source region.
7. A photodetector including a photodiode having an anode connected to a reference voltage, a transfer MOS transistor having a source connected to a cathode of

the photodiode, a precharge MOS transistor having a source connected to a drain of the transfer MOS transistor and having a drain maintained at a supply voltage, a control MOS transistor having a drain maintained at a supply voltage and having its gate connected to the drain of the transfer MOS transistor, and a read MOS transistor having a drain connected to a source of a control MOS transistor, wherein the photodiode and the transfer transistor, respectively, are the photodiode and the MOS transistor of claim 1.

8. A photodetector including a photodiode having a anode connected to a reference voltage, a precharge MOS transistor having a source connected to the cathode of the photodiode and its drain maintained at a supply voltage, and a read means including a control MOS transistor having a gate connected to the source of the precharge MOS transistor and a read MOS transistor connected in series with the control MOS transistor between a supply voltage and a read terminal, wherein the photodiode and the precharge transistor, respectively, are the photodiode and the MOS transistor of claim 1.